

[P. 50d] Tubatulabal NS22

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Frank Manuel was born at Soto'tlo, a large village of about twenty families, on Deer Creek where both Bankalachi and Pitanisha (Tubatulabal) lived. His maternal grandfather, Čoxo'no, was a Pitanisha chief there. There were two other chiefs whose names F.M. does not re-

¹⁵⁸See Voegelin, Tubatulabal Ethnography, 19.

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[172] ¹⁵⁹Stodds pipes occur in archaeological remains from the southern valley but were not used within the memory of informants; they may also have come by trade from the Chumash (see Kroeber, Handbook, 564).

¹⁶⁰Gayton, Estudillo, 83.

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[P. 88a]

435 was \$5.00 (fig. 14, d). This means half-hitched or "chain-stitch" loops in the already
 436 strung length of discs, which nearly tripled
 804 the quantity of a plain length from wrist around elbow and back to wrist.²⁰⁵ A cylindrical bead called humna was worth twenty-five cents.

535 The participants and singers in a ritual
 465 like the mourning ceremony or an ordinary pleasure dance would be given about 1/2 čok in payment by spectators. There was no fixed amount: if a person really could not afford to give more than a few beads he was not thought miserly. At times of display or for payment of individual performers, as at the death of Huhuna in the Huhuna Dance, long strings of money were thrown down.

556 A definite attempt to accumulate wealth was made by chiefs, shamans, and probably others who hoped to acquire prestige. Even when money was not the medium of exchange, value for value was the expectancy, not, however, with the shrewd, mercenary motivation of receiving, but with the courteous, generous motivation of giving, and maintaining moral status thereby.²⁰⁶

436 Kroeber, in a general reference to money,²⁰⁷
 804 states that the unit of measurement in the north was the čok; one and a half times the circumference of the hand. In the south the čok was somewhat shorter, and was reckoned as half the hista, twice the circumference of the hand.

Powers gives a somewhat different evaluation, which may have been the rate of his day.²⁰⁸

The usual shell-money is used among them, and a string of it reaching from the point of the middle finger to the elbow is valued at 25 cents. A section of bone [sic], very white and polished, about two and a half inches long, is sometimes strung on the string and rates at twelve and one-half cents.

Numerals

- | | |
|---------------|-------------|
| 802 1. yet | 6. tu 'dipi |
| 2. po 'noi | 7. no 'mč:n |
| 3. so 'piŋ | 8. mo 'nus |
| 4. ha 'po 'ni | 9. no 'nip |
| 5. yu ts:nuk | 10. tɬi 'uv |

● [72] ²⁰⁹A half-hitched string with a bead on each loop was a method of bead-stringing exemplified in Pueblo II material from Nevada (vide Cody, *Simply Strung*). This method may account for the "shingled" beads found with a bear burial in the San Joaquin Valley (Weiser and Hewes, *Animal Ceremonialism*, 589).

[43] ²¹⁰Taking small gifts of cigarettes or candy to old
 572 Yokuts people presented a problem to the recorder because of their quiet insistence upon a return of some kind; refusal to accept a gift in exchange would be a subtle offense.

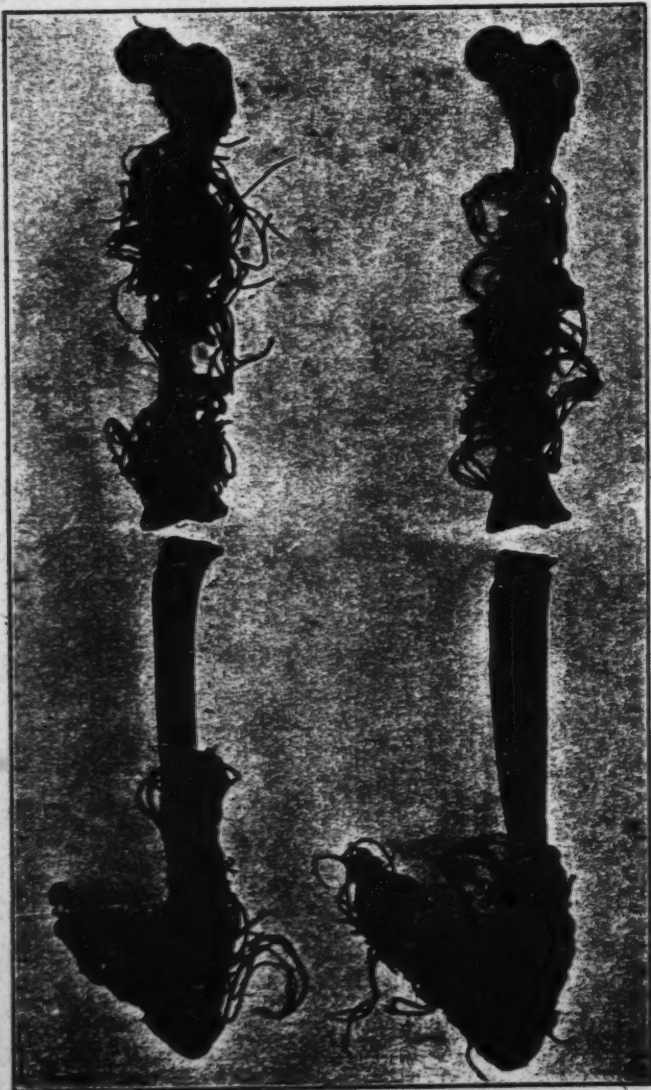
²⁰⁵Handbook, 498.

²⁰⁷p. 375.

2: Kroeber E-5 (ca. 1918) 1953
NS29 Yokuts NS29

BUREAU OF AMERICAN ETHNOLOGY

BULLETIN 78 PLATE 41



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CORD-WRAPPED LEG REMAINS, BUENA VISTA LAKE

[p. 508(A)]

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also. Thus the Nutunutu boy's cradle is said to have the hood fastened only at the sides, the girl's at the top and the base also.

POTTERY.

The Yokuts practice one curious and hitherto undescribed art: that of pottery making. The precise distribution of this industry remains to be ascertained. The southern hill tribes made pots; the adjacent valley tribes appear to have; on the lake tribes there is no information; the Chukchansi and probably other northern tribes did not follow the art. Of adjacent Shoshoneans, the Tūbatulabal made pots; some of the western Mono probably did. Outside of these groups there is no record whatever of the industry. It is not connected geographically with the pottery-making area of southern California, which does not come north of the San Bernardino Range, so far as known; and the territorial gap is paralleled by a thorough diversity of the ware.

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The distinctive feature of this pottery is its excessive crudeness. It appears to have been made by a rough fitting together of pieces of clay, or a pressing out of a lump: there is no evidence of the coiling and smoothing method. It is doubtful whether the clay contains tempering. Glue, blood, or a sticky substance may have been introduced as binding material. The color is from light to dark gray. There is no slip, wash, or pattern, except now and then a rude incision obviously modeled on a basket pattern. The shapes are indefinitely varied, without approach to standardized forms. A row of the vessels looks as if produced by children or experimenters. (Pl 51.)

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Even the uses are not known. Most of the pots show evidences of employment in the fire. But their purposes must have been special, since the ordinary cooking of the Yokuts is as regularly performed in baskets as among other groups. Small vessels may have been intended for services that we can only suspect. Thus the Yandanchi affirm that they formerly kept tobacco in hollowed clay balls.

Archaeology gives no information as to the age of the industry. There has been little collecting in the Yokuts area and no systematic exploration. The prehistoric clay cooking balls or sling shots of the stoneless Stockton plains, where the Yokuts Chulamni lived in the historic period, suggest a connection; but no vessels of the same material have ever been found with these. The Clear Lake Pomo sometimes make a minute receptacle by pressing a hole in a lump of clay; but they do not bake these little articles. Evidently there were some anticipations toward pottery making latent in parts of California; and the Yokuts carried these tentative steps

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PREFACE

In introducing this *Handbook of Yokuts Indians* it is probably necessary to state that I was born on the Orestimba Creek in western Stanislaus County and lived the early portion of my life in several localities on the "West Side" of the San Joaquin Valley. 114

There had been no Indians on the West Side since about 1806. They had been stripped from that entire territory from Martinez on the north, to Paleta on the south, and taken to the Spanish Missions on the coast. However, all along the eastern edge of the Coast Range foothills, along the San Joaquin River and along the lakes and sloughs from that river southeast to a point south of Bakersfield, there were many evidences of Indian occupation. 101
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[797]

Those evidences were in the nature of abandoned village sites: depressions where structures had stood; cemeteries; flat, earthbound rocks, honeycombed with mortars; occasional portable mortars, pestles, metates and manos, beads, arrow and spear points, and heat-shattered cooking rocks. 172

On the Orestimba, Romero, Garzas and Los Baños Creeks, and along the near-by San Joaquin River were many immense, saucer shaped depressions over which had stood structures of some kind. One of these on Los Baños Creek is more than sixty-five feet across. In the center of these depressions are fire pits, still containing charcoal and heat-shattered rocks.

For those of us who lived on the West Side, these evidences of departed Indians held a great fascination. I can still remember how in 1909 I was thrilled to see my first live Indians. They were camped by the road in the mountains near Strawberry, east of Oakdale. 114

In 1923, when I first went to Tulare County to live, I was again thrilled to find several Indian families living in primitive manner along the banks of the Kaweah River east of Visalia. In October of that year I interviewed my first aged Yokuts, blind Mollie Lawrence. She was a full-blood Wukchunne and was then about ninety-five years of age. I continued to interview Mollie until 1928, when she died. In the 114
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177 Many of the Yokuts tribes did not come in contact with whites and were not seriously disturbed by western immigration until as late as the early 1860's. This is probably not true to the same extent of so numerous a group of people at any place within our nation. By 1860 many tribes of the eastern and southwestern United States had been disturbed for 250 years. For this reason the leading scientific institutions of the United States are hurrying to gather all possible information concerning these people before the last remnants of the older generation have passed away.

133 It is fortunate that the names of a number of the San
103 Joaquin Valley tribes have been preserved, we hope for all time, in the names of some of the rivers and creeks of the San Joaquin Valley. The most northerly of these is the *Cosumne* river. Near it lies the *Mokelumne*, and farther south the *Tuolumne*, *Chowchilla*, and *Kaweah*.

A few other landmarks have been knowingly or unknowingly named after Indian tribes. *Tehachapi* Valley probably took its name from the native word, *Tah-hi'tch* or *Tah-heetch*, meaning Oak Covered Valley. The Wahtoke district east of Sanger was named for *Wahtoke*, who was chief of the *Choinimne* tribe of Yokuts on Kings River. The Wukchumne Irrigation District and Wukchumne Hill east of Visalia were named for the *Wukchumne* tribe, full-blooded remnants of which still reside on the Kaweah River east of Visalia. Camp Potwishi in Sequoia National Park, was named for the *Pahdwishi* (Pahd'-wih-she) tribe which once lived there. Yokohl valley northeast of Exeter was named for the *Yokodo* tribe, which once occupied it. The Laguna de Tachi Land Grant, surrounding present Laton, was named for the Tachi tribe of Yokuts.

101 At the coming of the first American settlers, as early as
177 1850, and probably long before that time, there were no living Indians occupying the entire west side plains, from Byron on the north to Paleta in Kern County, where the Santa Maria road crosses the Coast Range via Maricopa and the Cuyama Valley.

172 The remains which characterize an Indian occupation are
361 quite common throughout the entire west side area. These remains are in the nature of depressions left by their houses or tepes, burial grounds, and debris-scattered camp sites. Throughout this territory thousands of stone implements and weapons have been found, showing that from time to time

the entire area was occupied, although probably not by such great numbers as was the east side of the valley. 172
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Concerning these west side tribes there is, of course, practically nothing known. Few hints as to their names and habits have been left by the Spanish missionaries in their records concerning the tribes taken from that territory. This lack of data is due to the fact that the entire west side was stripped of Indians upon the completion of the missions to the west, probably before the year 1806. With one or two exceptions, they never returned to that area, it being too open to the invasions of the Spanish, whose advances were not welcomed by those primitive people. 101
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THE NORTHERN YOKUTS

One of the most marked characteristics of the Yokuts people concerned their organization into tribes, and their establishment of definite boundaries for each tribe. This is not common to all California primitive groups, nor to primitive groups in other portions of the United States. 101
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Beginning at the northern end of the San Joaquin Valley the tribes were distributed roughly as follows: According to F. W. Hodge, *Handbook of North American Indians*, the *Yachikamni* Yokuts occupied the territory surrounding present Stockton. *Tchikimisi*, on the south side of the Cosumne River, and *Tawi*, on the lower San Joaquin River, were *Yachikamni* villages. 101
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In addition to the Cosumne and Mokelumne who are by some authorities classed as *Miwok*, there were along the Stanislaus river the *Tuolumne*, although their name was given to a river further south. According to J. C. Frémont the *Auxumne* lived on the Merced River. The *Chulamni* are reported on the Stockton plains.

The first tribe about which anything definite is known is the *Chauchila*, for which the anglicized Chowchilla has been substituted. These people were the only warlike tribe of Yokuts. They ranged along the Chowchilla River from the San Joaquin River on the west to the Sierra foothills on the east. [181]

The *Heuchi* claimed Fresno River from the San Joaquin River to the foothills. Their village of *Chekayu* was located on the north bank of Fresno River, about four miles below present Madera. Above the Heuchi, on the south side of Fresno River, were the *Chukchansi*, a foothill tribe.

175 It was just above this last village that the noted Padre, Francisco Garcés, crossed Kern River. According to the entries in his diary, on May 1, 1776, he came down Cottonwood Creek until he could hear Kern River roaring out of the canyon. The Indians would not allow him to attempt to cross the river at that point. Present day visitors to the site can appreciate the judgment of the Indians in giving Garcés such advice. They led him downstream until "in a little while" they passed an Indian village (Wawcoye) and could see another village across the river on the north bank. There the Yowlumne Indians helped Garcés cross the river. The exact point of crossing is undoubtedly about one hundred yards upstream from the county road bridge at the Rio Bravo Rancho. The streambed there is almost solid granite and has certainly changed little or none in several centuries. Since the first permanent white settlers came to Kern River that site has been a favorite fording place.

361 Villages down stream from those at the Rio Bravo Rancho were located a short distance above the Discovery Well on the Means Ranch, (NW ¼ of Section 35, T28S, R28E, MDB&M). 103 The village on the south side of the river was near the weir known as *The First Point of Measurement*. About two miles upstream from this point, on the north side of the river, was the village of *Tsinehiu* (Tsin-e-he'-oo).

The next villages of which we have definite knowledge were within the limits of the present City of Bakersfield. According to information obtained from aged Yowlumne Indians, there were two villages where the river ran close to a high knoll. One of these villages, *Woiu*, was on the knoll itself, and the other was across the river to the west.

361 It appears certain that both of these villages were between the present Santa Fe passenger station at Sixteenth and F streets and the Mercy Hospital at Sixteenth and C streets. 172 When the first white settlers arrived where Bakersfield is now, there was a large mound at this location. In later years a man named Reeder built a house on it and the mound became known as Reeder Hill. The mound was almost completely removed when the Santa Fe Railway was constructed through Bakersfield. Trainloads of sandy soil were hauled from the mound to build the railroad grade in both directions from Bakersfield. In this work many hundreds of stone mortars and pestles and Indian skeletons were uncovered.

Before it was disturbed by white people, Reeder Hill extended diagonally across where the present Santa Fe passenger station is located from about the center of the court yard between the High School shops, to the intersection of Sixteenth and D streets. A branch of Kern River ran close by the west end of Reeder Hill. It actually came almost to the intersection of Truxtun Avenue and A streets. 361 172

When Colonel Thomas Baker came to the site of present Bakersfield in 1863, a large group of Yowlumne Indians lived in the two villages, one on each side of the river at the west end of Reeder Hill. The late Thomas A. Baker told me that his father, Colonel Thomas Baker, for whom the City of Bakersfield is named, often sent him down to Reeder Hill to bring Indians to work at their home. This log home stood near the intersection of Nineteenth and M streets. These Indians, the most willing often being men, made gardens, washed clothes, scrubbed floors, mended clothes, cut firewood, cared for children and did all sorts of housework. They were the first baby sitters in Bakersfield. [464] [357]

Other Yowlumne villages and camping sites were scattered about the plains near where Bakersfield is now located. But they were not permanent villages, as the Indians were forced to move when high water flooded the plains adjoining the sloughs and branches of Kern River, and also when the flow of Kern River switched from one slough or branch to another.

Soon after white people began to settle on the site of present Bakersfield, the Yowlumne began calling the locality *Wawlu*, meaning Planting Place. This was because the white settlers began planting crops. [103]

THE YOWLUMNE INDIANS

The Yowlumne were a typical Yokuts group. Their language was almost identical with that of nearby Yokuts tribes. They were, like the rest, a happy, friendly, dependable people. The first settlers on lower Kern River found it perfectly safe to take them into their pioneer homes to perform housework of all kinds. This was true of both men and women, for often the Yowlumne men did washing, dishwashing and the scrubbing of floors as willingly as did the women. [10] [81] [462]

At this time, 1949, there are two full-blood Yowlumne Indians still living. This will come as a surprise to some readers, 161

438 Said Ichow, "When you trade with them people, you got
436 to know how much in their chok. You measure their chok and then you figure how much it is worth beside your chok."

435 In the old days one Wukchumne chok of beads of low value
439 would buy twenty bundles of hupud or ahnup. A half chok of average shell beads would buy twenty bundles. Ichow explained how the half chok was measured: "You double the string
[804] after you measure one chok." Two shell beads of low value would buy one bundle of basketry materials, or one tanned deer-skin. Ten average beads would buy one tanned elk skin or two tanned antelope skins.

436 From Yoimut, an aged Chumut, from Pahmit, an aged Dumna (Doom'-nah) and from other Yokuts, I learned that both asphaltum and paint of various colors in standard pack were also traded and sold for money throughout Yokuts territory. This standard size is uniformly described and approximates a size midway between that of a tennis ball and a baseball. Their statements were substantiated by archaeological remains in widely separated portions of Yokuts territory.

436 When the Smithsonian Institution expedition of 1937 excavated the old Tulamni Yokuts village at the east point of the Buena Vista Hills in western Kern County, a number of balls of asphaltum were recovered. They were almost exactly the size described by my informers. Some appeared to have been wrapped in tules or in rabbit skin strips. This can be appreciated when one takes into consideration the stickiness of asphaltum. I also recovered similar balls of asphaltum in Indian cemeteries at Alamo Solo in southwestern Kings County, and at the Sweet Mound, about four miles southwest of Wankena in western Tulare County.

[261] It is of interest to note here that Wahumchah states that these balls of asphaltum were burned by the Yowlumne to provide the black smoke for sending smoke signals.

372] At the Menjoulet Rancheria on Los Baños Creek in western Merced County I found two "standard pack" balls of red pigment and one of white, also several crude chunks of the diatomaceous earth from which the white pigment had been prepared. The balls of pigment showed the finger prints of the person who had formed them. In the Broder Mound (west center of Section 31, T18S, R26E, MDB&M) I recovered from disturbed burials one standard ball of black pigment, probably made of burned graphite taken from the old Yokuts diggings

near Aukland. In an old cemetery on Grizzly Gulch, about on a line between the villages of Woody and White River, I found both yellow and red pigment in standard sized balls. 436
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If the uniform size of the above findings is to be considered as more than purely coincidental they show a remarkable spread of standardization.

YOKUTS TRADE AND TRADE ROUTES

From widely scattered specimens of paint pigment, pipe-stone, and other objects easily identified as having come from specific localities, it is well known that the North American Indians had established extensive trade routes. From a grave near Dunlap in eastern Fresno County was taken a remarkable piece of pottery, a water jar of fired red clay, having on top a well modeled human head, and around the sides five openings. This jar was identified by Dr. F. W. Hodge, Director of the Southwest Museum, Pasadena, as probably being of *Mojave* manufacture. It was probably traded to the *Entimbits* Yokuts from the *Mojaves*. 487
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In my own collection is a small decorated clay pitcher and a decorated clay pipe. The pitcher was excavated by a Tulare resident in an Indian burial ground at a locality known as Turnbull, west of Tipton. The clay pipe was collected from the cultivated surface of an Indian village site near Alpaugh. Both were identified by the late Dr. T. T. Waterman of Fresno State College as having come from northeastern Arizona, or southeastern New Mexico. In my collection are also an ancient rusted iron axe and the badly rusted pieces of what was probably once a sword. These were excavated from an old *Choinok* Yokuts cemetery, six miles east of Visalia. These were the only articles of white manufacture recovered from approximately six hundred burials excavated at that site and so must have been traded to that village soon after the Spanish first visited the coast of California. 487
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Obsidian, or volcanic glass, from Mono and Inyo Counties, is found at Indian village sites along the California coast.

Coast seashells are found as far east as Arizona and New Mexico. Dozens of other evidences of Indian trade could be cited. But we have more than archaeological evidence.

Yoimut, last survivor of the Chunut Yokuts tribe from the northeast shore of Tulare Lake, related to me that organized trade was carried on between her people and those on the coast. 487
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291 travel uncomfortable were brought by the white man. It is
 [177] probable that in some instances, particularly in rocky, brushy
 country, some sort of moccasin was used.

137 It is interesting to pass along the roads of the San Joa-
 177 quin Valley with the Indians of the older generation and have
 824 them point out the plants which came with the white man and
 those which are "old timers." Among the introduced plants
 are fox tail, cockle burrs, Spanish thistle, puncture vine, sand
 burrs and many others, any one of which would have forced into
 the language of all Yokuts Indians a word for some sort of
 foot covering.

YOKUTS WOMEN'S DRESS

291 As regards dress, the Yokuts woman was, until the year
 just passed and the coming of the "new look," quite modern,
 short skirts and no stockings having been in style for many
 years before Hollywood modes were adopted. Painting was
 [304] not unknown, although it was often done in permanent form by
 tattooing.

302 The Yokuts women often wore bangs and allowed the re-
 mainder of the hair to hang loose over the shoulders, or gather-
 ed and tied it behind the neck. Young unmarried women are
 said to have made themselves more attractive by separating the
 hair at the back and forming it into two wrapped coils, bound
 by strings of beads or other bright ornaments. This practice
 was called *pin-ke'-itch*. They sometimes wrapped string around
 their heads and stuck feathers under it at the back of the
 head. In this they followed very closely the ancient customs of
 their red sisters throughout America.

302 When in mourning for a brother, sister, father, mother,
 765 husband, or grandparent, it was in some tribes customary for
 Yokuts women to bob their hair. It was cut off short across the
 back, sometimes by means of a piece of glowing sycamore bark,
 the hair being clamped between the parts of a split stick. They
 called this operation *lu-pahn'-man*. [during the period of
 mourning there was a tabu against washing, or bathing and the
 eating of meat]. The hair removed was tied to a rock and
 thrown in a deep hole in the river. I have been assured by in-
 dividuals of tribes among whom I have worked, that none of
 [283] their people would have used or even preserved hair removed in
 172 this way; this in spite of the fact that I have found in Yokuts
 graves numerous lengths of cord, made of twisted human hair.

Over the cheeks was applied a mixture of powdered charcoal and pine pitch. This badge of mourning was sometimes allowed to remain in place for approximately one year, or when a yearly mourning gathering and dance was held. This painting was done to accentuate the dirt which accumulated under the eyes while the mourners were constantly crying and could not wash. 302
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The women, and men, too, sometimes perforated their noses (*tong-ok-e-en*), and thrust through the openings a long slender piece of bone, or hardwood (*tong-ik'-un*) or the rim from an abalone shell. These ornaments were often six inches in length and are said to have added a note of sternness to the naturally impressive, dark-visaged natives. 304
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Tattooing varied with the various tribes throughout the valley. They called it *ship'-ah wah'-shud*. It was accomplished by making cuts in the skin with sharp chips of stone and rubbing powdered charcoal into the cuts. 304

Tattooed designs consisted mostly of straight lines, both solid and composed of rows of dots. They occurred on the chin, across the cheeks from the corners of the mouth, and sometimes on the forehead. Each tribe doing this is said to have had its own distinctive design. 304
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Women pierced their ears, (*pw'-wah he'-un*), and wore suspended from them beads, seashells, and other small ornaments, to a greater extent than did the men. Strings of beads were also worn about the neck and suspended with, or wrapped about, the hair. These beads were made of steatite, or of seashells, appearing white, or blue and bluish black. 304
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Painting (*ship'-ah ush'-uk*) was probably common among the valley Yokuts tribes. Balls of paint have been found in graves at such widely separated points as the Los Baños Creek in western Merced county, the Alamo Solo in northwestern Kern county, and Grizzly Gulch in eastern Tulare county. They included three colors, red (*haw'-yow*), white (*huh-so'-sid*) and black (*wow'-won*), red being most common. 302
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Several craniums have been found having the marks of paint upon them. As the flesh decayed, the color on the skin was deposited on the cheek bones. The colors used in these cases were red and white. There was some difference between the use of these ancient cosmetics and those applied by present white women of the valley. The Yokuts painted the face red

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● 172 and painted white stripes across it, exactly opposite to the present practice.

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[237] Only the principal article of women's clothing remains to be described. This was a short skirt affair (*chong-ish'un*), made in the form of two small aprons, a small one behind and a smaller one in front. The skirt was made of various materials, deer skin, tules, hemp, rabbit skin, mud-hen skin, grass and bark being reported from different portions of the San Joaquin. It reached almost to the knees. Some of these skirts were weighted by small balls of asphaltum attached to the lower edge.

While present day Indians are quite careful about conforming to the white woman's standard of dress, they appreciate quite fully that the present tendency is decidedly toward the old Indian custom. Several years ago I took an Indian woman to several of the valley schools to give demonstrations in basket making. We arrived at one school during a period when both boys' and girls' physical education classes were in session. The boys were on their own courts playing basketball and wearing only trunks. The girls were on another court playing the same game, wearing middies and bloomers, but no stockings. During the demonstration, the Indian woman sat on the floor of the gymnasium where the program was being held. The front row of spectators was composed entirely of girls, none of whom wore stockings.

V86 After the performance, and when about thirty miles of the return trip had been made, the Indian woman said, "Ugh!" At this I listened closely, because such an exclamation always preceded a heated statement. Following a long pause came again, "Ugh! White people don't wear any more clothes than old-timer Indians. All style. They tell Indians you nasty, you dirty, you don't wear clothes. So Indians wear clothes. Indians all die. Now white people don't wear clothes. Maybe Indians nasty. White people nasty, too."

YOKUTS SUMMER VACATIONS

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484 The most unique of all boats, or other structures for that matter, built by Yokuts tribes and probably by other tribes on the Pacific Coast, were the great tule rafts built on Kings River and probably on other rivers in times past for summer migration to the lakes in the San Joaquin Valley. By residents of the San Joaquin who must spend the hot summer months at home,

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Top left are three perforated stones used in ceremonials and as game stones. At right is a crescent shaped stone, reported as having been used in a girls' adolescence ceremony. Center are charm stones. The one at the extreme right was found near Mountain View, Santa Clara County. The eight stones at the left were found in a "nest" at the Harris mound, six miles west of Tulare. Bottom row shows six stone footballs, found buried together under an oak tree on Kings River Island near Laton.

diameter and had a hole in the center about an inch in diameter.

"This game was played principally by the young men. It was a much quieter game than the disc game, but was scored in the same way. They shot wooden pointed arrows at the stone as it passed by.

[412]

"This same stone was used to straighten their arrows and their shafts for gigging fish."

MISCELLANEOUS GAMES

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In addition to the statement made by Mayfield concerning the Indian game courts, we are assured by other pioneers who lived near the Indians during the early settlement of the San Joaquin Valley, as well as by old Indians themselves, that

in excellence of stitching, but in mathematical regularity of detail. 285
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In addition to those designs which are worked into the basket itself, it is often embellished with the feather top-knots of quail. This was particularly true of the bottle-neck, or *aw'-suh*, of the Yokuts of Kaweah, Tule and Kern Rivers. In addition, various kinds of beads were sometimes fastened to the outside of the baskets. [237]

It must be appreciated by readers that in an article of this nature, which has already exceeded proper limits, the subject of basketry designs can scarcely be approached. In addition to the forms already discussed there are countless numbers of designs reproducing almost every possible geometrical form. Some of them, we are told by basket makers, are used simply because they are *pah-yo'-me* (pretty).

It is of interest to note here that at least some of the basketry designs were used on the fabric made by the southern Yokuts. These tribes, the Tulamni, Tuhohi, Hometwoli and Yowlumne made many large circular mats or bags of fabric which probably were used for many purposes about their camps. However, the only uses of which we have definite knowledge are two, as shrouds for dead bodies and as linings for the sand basins in which acorn flour was leached. These fabric mats or bags were started of fiber thread much as were the blackberry gathering baskets and were twined, not woven. One piece of such fabric shows the rattlesnake pattern, worked in black thread. Although all existing specimens of Yokuts fabric have come from graves and are partially decayed, several designs can be distinguished on them. Material used in making Yokuts fabric is thought to be the fiber of the native hemp and/or milkweed. [286]
[764]
[172]
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How the native woman was able, without pattern or example in nature, to bring into being countless numbers of beautiful designs and, with no tools other than a bone awl and a sharp rock, to form them into a basket, can never be comprehended by the layman until he has watched that work for many weeks. The artistic taste and mathematics involved in this one Indian art alone shows more plainly than anything else we know about them that the mind of the Yokuts Indian was equal to many many things far beyond anything that we have appreciated. [412]

never sang my song for them. They were only *Ahntru*. They ⁷⁸⁹ wanted to be *Tripne*. ⁷⁷⁸

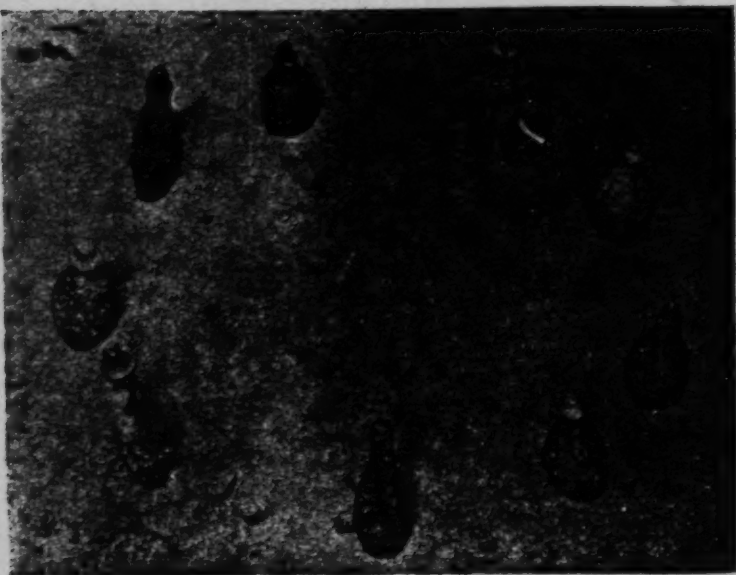
"An old *Nutumutu* (Noo-too'-noo-too) Rain Doctor at ¹²⁴ Kingston knew my song right. I heard him sing lots of times. His name was *Ne'-mah-pah*. He died long time ago."

But after all of the above data had been gathered, there ¹⁷² was still much mystery attached to the plummet shaped Yokuts charms. At two points in Tulare County, and one in Merced ⁷⁷⁸ County "nests" of these charms had been uncovered during the process of leveling land. One of these was near an old, disused channel of Cameron Creek, at the Harris mound, one-half mile north of Paige, west of Tulare. Another was on an old, disused course or slough of Cross Creek, still further west of Tulare. The third was on a blind branch of Santa Rita slough, due east of Los Baños. The general details of all three finds were much the same. The stones had been found buried in a small circle. The charms from the Harris mound, I obtained from Mr. Harris, also his first hand account of their discovery.

While this manuscript was being prepared for the printer I received word that a fourth nest of nine charm-stones had been uncovered about fifteen miles west of Bakersfield near the center of Section 15, T29S, R25E. I was able to secure these stones and to hear from the discoverer what position they had occupied in the ground. A mound was being leveled. At first it was thought to be a sand dune, as, in common with several others nearby, it appeared to be composed of fine wind-blown silt.

This mound was beside an old channel of Kern River, which was filled to a depth of three feet with fine silt. This channel can be traced for several miles in the direction of Bakersfield, and in the opposite direction, toward Goose Lake. It has carried no water within historic times. The silt from the mound was scraped into the old channel and the whole area prepared for planting cotton.

No artifacts of any kind were found; in fact, nothing but clean silt was encountered, until a depth of about six feet had been reached. At that depth an old camp site was uncovered. Charcoal, ashes, and soot-covered, heat-shattered rocks were scooped up by the carryalls, which were drawn by Caterpillar tractors. A number of fine, thin-walled, steatite cooking vessels were broken up by the equipment. A metate and mano and several mortars and pestles were uncovered.



Nine charm stones, replaced in the soil as they were found in an Indian mound-campsite about two miles southwest of Rio Bravo school in Kern County. They were uncovered by Mr. Rudolph Cantrell while leveling land in April of 1948.

Finally, at a depth of about eight feet, a carryall, operated by Mr. Rudolph Cantrell, scraped off the top of a finely polished stone. Investigation brought to light seven finely made serpentine charm stones and two made of fine-grained banded stone. They stood with their points down and were arranged in the form of a circle about sixteen inches in diameter.

While an account of the above find was being added to this chapter, I became acquainted with a person who has probably had more experience than anyone else in uncovering charm, or rainmaker's, ceremonial-stones. He is Mr. A. L. Threewit, of Buttonwillow. Mr. Threewit has leveled many hundreds of acres of land in the vicinity of Buena Vista slough. In this work he has uncovered no less than six clusters of charm-stones.

He has uncovered numerous other deposits of these stones, but they were disturbed by earth-moving equipment before he saw them, so he could not be certain of the exact position in

which they had been buried. He has also uncovered dozens of single stones. In 1946, on the Crawford Ranch, about eighteen miles north of Buttonwillow (Section 21, T27S, R22E) he uncovered a cluster of about ten charm stones. As the situation under which they were found was almost identical with the others, Mr. Threewit's description of their position will suffice for all. 172 178

"In the fall of 1946 I was leveling a piece of land for Mr. Clinton B. Crawford. On it was an old abandoned slough channel with a large mound beside it. The top of the mound was at least ten feet above the bottom of the slough. The mound was composed of hard, alkali-saturated soil. The old slough channel was about one-fourth mile east of the main channel of Buena Vista Slough, which had been deepened into a drainage canal.

"At the depth of about one and one-half feet below the surface of the mound my scraper uncovered a cluster of plumb-bob shaped stones. They were standing on end and were arranged in a circle about a foot and a half in diameter. Inside this circle were three rocks showing signs of fire. The three rocks were lying in a bed of ashes and charcoal. The plumb-bob shaped stones did not appear to have been burned. The fire had been kindled in the middle of the circle formed by them.

"I have uncovered at least six clusters of these plumb-bob shaped stones, all buried at about the same depth, and all in the same position as the one I have described. I have picked up many other groups of them but did not see them until they were in the scraper. Together with the scattered ones, I have uncovered many dozens of these plumb-bob shaped stones in the area between Tupman and Lost Hills. They have always been uncovered in knolls beside old, dry water courses. In at least one instance a cluster of them was found beside a human skeleton."

Although I have heard numerous other stories of the finding of nests of charm stones at other points in Yokuts territory, accounts concerning the ten mentioned above are all that I have been able to substantiate satisfactorily. Then, about two months after the find west of Bakersfield, while interviewing Mrs. Mable Stricklett of Santa Cruz, I made the most important find of all.

In 1894, Mrs. Mary J. Gates, mother of Mrs. Stricklett, had published verification of all I had gathered, as well as the

- 172 key to the nest burials of charm-stones. This appeared in a
778 pamphlet titled, *Contributions to Local History*, and gives the
history of the territory surrounding Mountain View, in north-
ern Santa Clara County. Here is her account:

"The most interesting specimens of rude aboriginal art are charm or sorcery stones. Ray Dexter has one with the polish worn off that he found in the slough, and Frank Francis has another and highly polished one of a fine-grained, hard stone that was found on the Rev. Mr. Crittenden's ranch. Many charm stones are reported from Mr. Summer's ranch. These stones are of various shapes and sizes. The purpose for which they were used, at what time, it seems not easy to make out. But our comparatively recent Indians finding these stones attributed to them magical powers.

"No less than six theories have been advanced with regard to their use. They have been found in too many forms for games; too heavy for personal adornment; as plummets they would have been of no use to a people who lived in huts, or no shelter whatever; sinkers they need not be, when many stones in the creek would answer fully as well; the small knob on the end of nearly all of them caused them to be of less service than the common pestle; and the investigators came to the conclusion they were used for religious purposes, and in this way they found they were correct, as a few old Indians confirmed this idea.

- 172 "The Indian medicine man used to collect twelve or maybe
778 twenty charm stones and arrange them in the form of a circle,
789 with another very different stone in the center, and over these
he sprinkled the seed of the wild sage, feathers and red ochre,
when war, sickness, drought or famine came to the tribe. He
would next thrust the stones violently together, all the time
muttering his incantations -----.

"These charm stones were also suspended by a string over the water where they were fishing, hung from trees to call the fish up the streams, and at points in the mountains favorable for hunting."

It would almost seem that Mary J. Gates had actually interviewed Mr. Zachary T. Blankenship, quoted above. And does her article not explain why our San Joaquin Valley charm-stones were buried in nests? Were not all ten burials described above located on streams that had changed their channels? Can

the reader not see what happened one morning during the spring freshet many years ago!

The swollen stream suddenly broke from its old course upstream and cut a new channel in a different direction. At the Yokuts village the morning sun rose on a river channel devoid of water. The entire village was aroused. Their world had fallen about them. All medicine men were assembled and implored to bring the water back into the old channel. All charm-stones were gathered. The ceremony described by Mary J. Gates was performed by the inhabitants of an entire village who, if the stream failed to flow again, must in a few hours begin a march to the new channel. Although the singing and dancing went on throughout the day and night, no water came. So the stones were buried as an offering to the Tripane powers, and the migration was begun.

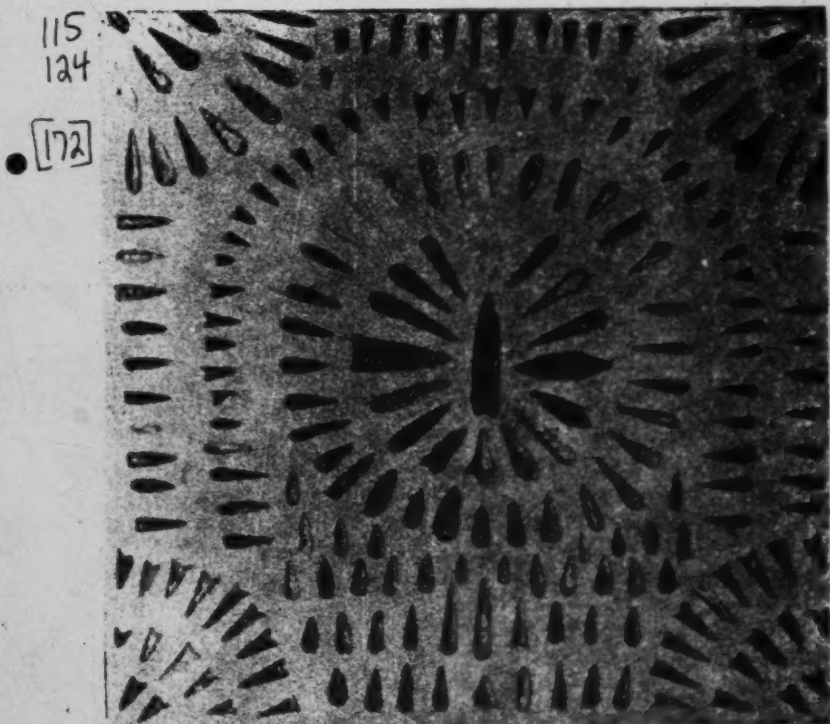
Incidentally, the publication written by Mary J. Gates and overlooked for more than fifty years, is one of the most substantial data available extending the range of northern Yokuts tribes into the Santa Clara Valley and toward the coast, where some authorities have long placed them.

From the depth at which this old village on Section 15 was buried it may be thought that the site was abandoned centuries ago. This may have been the case, but not necessarily. In recent years one ten-hour dust storm has been known to build mounds higher than the one which had accumulated above the old village site.

THE RATTLESNAKE DANCE

Students of the Yokuts Indians are surprised to learn that those simple, jolly people had developed a rattlesnake dance. Little is known as to whether or not this dance was performed on the west side of the San Joaquin Valley. Yoimut, last surviving full-blood *Chunut* Yokuts, stated that members of the *Tulamni* tribe took part in a rattlesnake dance held in Tejon Canyon about 1865. It is possible that they had always attended the dances in Tejon Canyon.

From Tejon Canyon as far north as the San Joaquin River the Rattlesnake Dance was performed by Yokuts tribes until historic times. Aged Yokuts have related stories about such dances held at Dunlap, Squaw Valley, Drumm Valley, Kings River, Eshom Valley, Antelope Valley, Lemon Cove, Tule River, Deer Creek, Poso Creek, Kern River, and Tejon



Above are shown typical Yokuts arrow and spear points, chipped from chalcedony and obsidian. They are from a burial mound about two miles north of Tupman in the range of the Tehachas Yokuts.

quick, accurate understanding and was able to furnish 3000 words for an English-Chunut dictionary in less time than I had ever collected one before, covering two dialects at the same time, the Chunut of her father and the Wowol of her mother. She could read, write and speak Spanish and English, as well as talk six Yokuts dialects.

Interesting as is Yoimut's story, there is room here for only a portion of it, presented in the following eight sketches, the original language of which has been changed very little:

159 I was born at the old *Telumne* (Tay'-lum-ne) village of
361 *Watot Shuhul* (Wa'-tot Shoo-lool) just northwest of the old

DISTRIBUTION OF POTTERY-MAKING IN SAN JOAQUIN VALLEY

The names of those tribes which are definitely known to make or not to make pottery are underscored in figure 3. There are certain doubtful cases. First the Gashowu: the Kechayi informant for the Gashowu and Kechayi groups, between whom close social and economic intercourse prevailed, stated that she had never seen any people make pottery; that an old man at Auberry, Fresno county (Gashowu territory), had a piece; that he had told her what it was and that people used it (pottery) long ago. The Kechayi were not pottery-makers. Had the Gashowu been pottery-makers the Kechayi would at least have known that they practiced the art even though they did not do so themselves. It is possible that the Gashowu man had obtained his piece by trade. The other uncertain cases are Telamni, Wolasi, and Choinok. Tachi and Chunut informants agree that no people about Tulare lake had made or even seen pottery in old times. The Chunut informant was familiar with the customs of the three immediate neighboring tribes to the east; she insisted that they had no pottery. The only reason to doubt her statement is the proximity of these tribes to the pottery-makers of the foothills with whom some trade was carried on.

The Chunut considered red clay a "good medicine." A ball of it was kept in the house; and a bit was scraped from it with the finger-nail and rubbed on the chest to cure a cough. Sometimes people "shaped out little dishes with their fingers" but these weren't good for anything. The informant's reaction to a demonstration of the hand movements made in rolling clay (as in the foothills) was to describe the method of fire-making.

Though potsherds occur sporadically in the floor of the valley, they are regarded by Gifford and Schenck as late intrusions.¹² These sherds are related stylistically to southern Californian ware rather than to that of the Yokuts.

Of the pottery-making of other tribes in the San Joaquin valley we know nothing at the present time. Mr. Theodore McCown reports that the Kawaiisu did not make pottery in ancient times, and have

¹² As the Fomo are reported to have done, Kroeber, Handbook, 537.

¹³ Archaeology of the Southern San Joaquin Valley, this series, 23:55-56, 1926.

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436 instance, goods which cost them at the store \$5 they sell among themselves for \$3, or thereabout. This is done by the old Indians, who consider an Indian dollar better than an American.

252 They say that, in remote times, they were accustomed to rub their acorns to flour on a stone slightly hollowed, like the Mexican *metate*, which [773] was a suggestion of the mouse; but nowadays they pound them in holes on top of huge boulders, which was a suggestion of the wiser coyote. On a [172] boulder in Coarse Gold Gulch, I counted eighty-six of these acorn-holes, which shows that they must have been used many centuries.

283 For snaring quail, rabbits, and other small game, they employ cords made of a kind of "wild flax" found in the Sierra. I presume this, "wild 224 flax" is milkweed (*Asclepias*).

272 Manzanita cider is made of a much better quality than the wretched stuff seen among the Wintun. After reducing the berries to flour by pounding, they carefully remove all the seeds and skins, then soak the flour in water for a considerable length of time. A squaw then heaps it up in a little mound, with a crater in the center, into which she pours a minute stream of water, allowing it to percolate through. In this way she gets about a gallon an hour of a really delicious beverage, clear, cool, clean, and richer than most California apple cider. The Indians consume it all before it has time to ferment, so that they do not get intoxicated on it.

226 In the mountain streams which empty into Tulare Lake they catch lake trout, chubs, and suckers. Sometimes they construct a weir across the river with a narrow chute and a trap set in it; then go above and stretch a line of brushwood from one bank to the other, which they drag down stream, driving the fish into the trap. Another way is to erect a brushwood booth over the water, so thickly covered as to be perfectly dark inside; then an Indian lies flat on his belly, peering down through a hole, and when a fish passes under him he spears it. The spear is pointed with bone, and is two-pronged. Still another method is employed on Tule River and King's [481] River. An Indian takes a funnel-shaped trap in his teeth and hands, buoys 501 himself on a little log, and then floats silently down the rapids, holding the net open to receive the fish that may be shooting up. On Tulare Lake they construct very rude, frail punts or mere troughs of tule, about ten feet

BOATS, MORTARS, AND BASKETS—GAMBLING.

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226 long, in which they cruise timidly about near the shore. There is a margin where the bottom is almost level and the waves run light; but the middle of the lake is of immense depth, and the billows sometimes lash themselves into oceanic proportions.

172 Around the lake and on King's River one will often find a family
412 using a tolerably well-made stone mortar. They always admit that they did not manufacture these implements, but happened on them in digging or found them on the surface, and that they belonged to a race other than their own. They sometimes have the ingenuity to improve on them by fastening a basket-hopper around the top to prevent the acorns from flying out. On the west side of Tulare Lake these mortars are very numerous, and of course they must have been carried thither from the mountains.

285 On Tule River I saw the process of basket-weaving. Instead of willow twigs for the framework or warp, the squaw takes long stalks of grass, (*Sporobolus*); and for the threads or the woof various barks or roots split fine—pine root for a white color, willow bark for a brown, and some unknown bark for a black. The process of weaving is like that heretofore described; [237] the awl or needle was the sharpened thigh-bone of a hawk.

525 The Gualala style of gambling prevails all over the State, but the Yokuts have another sort, which pertains exclusively to the women. It is a kind of dice-throwing, and is called *u-chu'-us*. For a dice they take half of a large acorn or walnut shell, fill it level with pitch and pounded charcoal, and inlay it with bits of bright-colored abalone shells. For a dice-table they weave a very large, fine basket-tray, almost flat, and ornamented with devices woven in black or brown, mostly rude imitations of trees and geometrical figures. Four squaws sit around it to play, and a fifth keeps tally with fifteen sticks. There are eight dice, and they scoop them up in their hands and dash them into the basket, counting one when two or five flat surfaces turn up.

525 The rapidity with which the game goes forward is wonderful, and the
777 players seem totally oblivious to all things in the world beside. After each throw that a player makes she exclaims *yet-ni* (equivalent to "one-y"), or *wi-a-tak*, or *ko-mai-eh*, which are simply a kind of song or chanting. One old squaw, with scarcely a tooth in her head, one eye gone, her face

757 pine sugar, hold them before the fire until it is melted, then lay them gently on the abdomen of the parturient. The sweat-house everywhere prevails, [177] of course, but it is smaller among these southern out-door people than it is farther north, being never used for a council-house or a dance-house.

791 The rain-maker, or wizard, though very potent, can be put to death by vote of a council, in case a patient dies under his treatment. Occasionally the manner of his taking-off is still more tragic. The Mono, being unsophisticated mountaineers, originally had no professional wizards, and in 1864 a Yokuts, named Sacate, went up from the plains to them, and for a time prosecuted an extremely lucrative practice. But he finally lost a case, and thereupon the simple and sincere Mono, being unable to comprehend how a man whose function was to save life could lose it and be guiltless, crushed in his skull with a stone.

[276] These wizards sometimes chew the seeds of the jimson-weed (*Datura meteloides*) to induce delirium, which their dupes regard as the touch of an unseen power, and their crazy ravings as divinely-inspired oracles. It is related that an ambitious wizard once chewed too much seed and yielded up the ghost.

731 An old Indian, named Chu-chu'-ka, relates that many years ago there was a terrible plague which raged on both sides of the Fresno, destroying 164 thousands of lives. According to his account it was a black-tongue disease. Abundant evidences of his truthfulness have been discovered in the shape of bones. A man named Holt was digging a ditch on Ray's ranch, near [172] Sand Creek, and found such an immense number of bones about eighteen inches under the surface that, after digging three hundred yards, he was forced to abandon the undertaking. On Hildreth's ranch, near Pool-of-Water, a large box of human bones was collected in making a garden.

791 It is the custom of the wizards to hold every spring the rattlesnake dance (*ta-tu'-lo-wis*), which is a source of great profit to the cunning rogues. 796 They plant green boughs in a circle, inclosing a space fifty or sixty yards 835 in diameter, wherein the performances are held, as are most of the Yokuts' dances. The great audience is congregated in the middle, while the wizards dance around the circle, next to the arboreal wall. Besmeared with [302] numerous and fantastic streaks of paint, and gorgeously topped with feath-

did not secure enough rabbit skins for their own needs, securing additional skins in trade from the east.

These conclusions are supported by data from the only large archeological excavations in the near vicinity, on Buena Vista lake to the south, with very similar environmental conditions. Wedel reports that at one site in 3700 cubic yards excavated only 1053 animal bones were recovered. Of these, 411 were bird bones and 142 terrapin bones. Elk and antelope numbered 61 and 45 respectively. Two hundred and one rabbit bones were found, most of them jack-rabbits (*Lepus*). In contrast to the small number of elk and antelope bones, bones from the genus *Canis* (probably mostly domestic dogs, but including some coyote) numbered 127.¹²

The Tachi, to some extent, were middlemen in the trade of sea shells from the ocean to the interior and are reported to have done some processing of ocean shells secured in trade from neighbors to the west. Considering their environment, the Tachi apparently were dependent upon their neighbors, especially those to the east, for the following items: obsidian, steatite, stone mortars, oak mortars, pestles and sinew backed juniper bows. In addition, they traded for pottery, basketry, pigments, rabbitskins and rabbitskin blankets and acorns. In exchange they provided lake products including fish, tule mats, salt from salt grass and shell "money" they manufactured from shells secured in trade. That the lake resources were important is indicated by the fact that, although some Yokuts' neighbors were allowed to visit the lake themselves, trade with westerners was carried on at a distance from the lake apparently in part with the intention of preventing them from learning the techniques of securing the products.

The picture emerges clearly, then, of a desert-dwelling people who, paradoxically, were oriented toward a water-based economy. Without the lakes, marshes, and sloughs, the land would have supported only the scantiest population, and, in fact, large areas, especially to the west, were rarely visited. For the Tachi the acorn appears as a relatively unimportant luxury and not as a staple.

If we turn to non-material culture, the differences between the lake dwellers as exemplified by the Tachi, and the acorn using Yokuts to the east, largely disappear. In the existence of "tribes" sharing a common dialect and capable of common action, the existence of semi-

¹² WEDEL, p. 11. The remaining data on the Tachi and their neighbors are from Gayton, Kroeber and Latta.

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[P. 42 B]

THE ABORIGINAL POPULATION

127 several were translated for Dr. C. H. Merriam. Mer-
114 riam's translations are on file in his manuscript collec-
tion. The citations to these accounts, published and un-
published, are given in the manuscript section of the
Bibliography. In this text they are referred to, without
further citation, by the author's name and date.

THE TULARE LAKE BASIN

* 161 We may commence detailed consideration of the ab-
149 original population with the Tulare Lake Basin, which
107 was inhabited in 1800 by three Yokuts tribes, the Wowol,
Tachi, and Chunut (see maps 1 and 2, area 2). The first
official visitor to the area was Father Juan Martin who
entered the valley in 1804 in search of new mission
sites. He found the principal village of the Wowol, which
he called Bupal. This rancheria, he said, contained not
less than 200 children. It was visited again in 1806 by
Moraga, who found 400 inhabitants. Eight years later
Father Cabot passed the site and found 700 people. Sub-
sequently, it was visited by Ortega in 1815 and Estudillo
in 1819 but these writers gave no population figures.
Since no other village was ever recorded by name in the
territory of the tribe, it is safe to assume that there
was no other, at least of permanence and reasonably
large size.

Gifford and Schenck (1926), in their discussion of the
history of the southern valley, conclude that because the
village was reported as having 400 persons in 1806 and
700 in 1814 there was a real increase in population dur-
ing the intervening eight years. This they ascribe to
fugitives from the coastal missions who entered the
valley as refugees. The opinion expressed by these
authors may serve as the starting point for discussion
of certain general problems which are encountered in
attempting to estimate the aboriginal population of the
valley.

In 1804 Martin saw 200 children. If we knew the ratio
of children to adults, we could easily compute the total
number of inhabitants. The age of "children" was vari-
ously estimated in colonial New Spain, indeed all the
way from seven to fifteen years. The early California
missionaries used approximately fourteen years for
males and twelve for females. In 1793, however, the
system was standardized for doctrinal purposes. Indi-
ans, both gentile and converted, were designated as
children if they were under ten years, i.e., in the age
bracket from 0 to 9 inclusive. Hence all the clergy con-
formed to the method in so far as they were able and
unless they specified otherwise.

* 161 There are certain data available which permit us to
162 estimate rather closely what proportion of the popula-
192 tion in California should be regarded as falling within
the category of children. Within the missions the annual
censuses enable us to compute with accuracy that the
individuals under the age of ten years, between the dates
1782 and 1833 averaged 21.4 per cent of the total popula-
tion (Cook, 1940). This value is relatively high and may
not conform to gentile, or aboriginal, conditions. With
regard to these we have information from archaeological
sources. In the Museum of Anthropology at Berkeley

[P. 43A]

*161 there are several hundred skeletons excavated from
 162 habitation sites in central and northern California, the
 192 ages of which have been determined and which constitute a fair cross section of the native population during the centuries immediately preceding invasion by the white man. Of these skeletons 22.6 per cent represent persons dying under the age of twenty years, and perhaps 10 or 15 per cent persons dying under the age of ten.

*161 Further light is shed by the baptism records of the
 162 missions San Jose and Santa Clara (these are discussed
 192 in greater detail in a later paragraph) which list gentile baptisms according to village and distinguish between men, women, and children. In the two missions, from approximately 1805 to 1833 there were baptized a total of 5,217 persons from villages in the valley region. Of these 930, or 17.8 per cent were children and 1,939, or 37.1 per cent were listed as men. The sex ratio is 0.826. Evidently the natives captured and brought to the missions do not give us a completely true picture of the composition of the aboriginal population, despite the large sample at our disposal. It is highly probable that (1) the natural sex ratio was nearly unity and (2) many of the men were killed in warfare or escaped the clutches of the convert hunters. Therefore we are justified in setting the number of men equal to that of the women. If we do this, the population represented by the 5,217 conversions was actually 5,626, of which men and women each constituted 41.8 per cent and children 16.4 per cent.

*161 Finally, we have figures from Zalvidea (MS, 1806)
 162 with respect to villages at the extreme southern end of the San Joaquin Valley. (These are discussed subsequently in connection with the population of that area.) At two of these, after adjusting for disturbed sex ratio, he found respectively 13.5 and 9.6 per cent children. However, Zalvidea's account states specifically that in these villages he carries the age of childhood only through the seventh year. If he had counted as children those under ten years of age, the percentages would naturally have been higher.

The data just set forth render it abundantly clear that the children constituted between 10 and 20 per cent of the aboriginal population. Since the exact value can never be ascertained, it is wholly reasonable to establish the arbitrary figure of 15 per cent. If we apply this factor to Bupal the result is not less than an aggregate of 1,333 persons, much greater than the value set by Moraga in 1806.

*161 With respect to the suggestion of Gifford and Schenck
 162 that the number of inhabitants of Bupal had been augmented between 1806 and 1814 by refugees from the missions the following points may be noted. In the first place, it has been possible to show (Cook, 1940) by means of the mission censuses that in 1815 the cumulative total of fugitives reported by all the missions in the colony amounted to 1,937 persons. Of these a great many who ran away in the earlier years were deceased. Many never went to the valley at all and the remainder were distributed from Sacramento to Bakersfield. It is highly unlikely that as many as 300 would be concentrated at one village such as Bupal. In the second place, the majority of the fugitives who did reach the village or its vicinity were former inhabitants of the locality who were merely returning to their old homes rather than coastal Indians, who would have constituted real refugees. On the whole, therefore, and this conclusion applies throughout the valley, true increase of population by immigration of foreign fugitives was negligible.